An Overview of the Geography and Climate of Las Vegas

Las Vegas is the largest city in the Silver State of Nevada and is located in a broad desert valley in extreme southern Nevada and almost surrounded by mountains that are roughly 2,000 to 10,000 feet higher than the valley floor. The Las Vegas Valley itself is about 600 square miles and runs from the northwest to the southeast, sloping gradually upwards on each side towards the surrounding mountains. To the west of the Las Vegas Valley are the Spring Mountains, which includes Mount Charleston, the region's highest peak at 11,918 feet. The north side of the valley is bordered by the Sheep Mountain Range, while the southern end is marked by the Bird Spring Mountain Range, McCullough Mountain Range and Black Mountain. To the east, Sunrise and Frenchman Mountain separate the valley from Lake Mead. The Las Vegas Valley itself slopes downward from west to east. This affects the local climatology significantly in terms of driving variations in wind, temperature, precipitation and storm runoff.

The official climate station for the Las Vegas Valley is located at McCarran International Airport, which is located about 7 miles south of downtown Las Vegas near the southern end of the Las Vegas Strip. This location is outside the official Las Vegas city limits in an area that is part of Paradise Township. Outside of the

incorporated cities of North Las Vegas and Henderson, the remainder of the valley is referred to as Las Vegas even though these areas are outside the official city limits. During the 1990s and most of the early 2000s, Las Vegas experienced a massive increase in population which resulted in explosive development of the Las Vegas Valley. This increase in urbanization has resulted in an urban heat island effect at the center of the valley, especially in areas near downtown and along The Strip, and most noted during the warmer summer months. As a result of this, McCarran International Airport frequently sees low temperatures some 5 to 15 degrees warmer than outlying areas of the valley, especially on nights with a clear sky and light winds. The lowest temperatures in the Las Vegas Valley are frequently recorded on the eastern side of the valley, which is lower and where colder air often likes to drain into at night, or on the higher elevations along the valley's west side.

Las Vegas is commonly noted for its abundant sunshine throughout the year and hot summer temperatures which reach into the triple digits. The coldest of winter nights will see temperatures drop into the 20s, with readings in the teens or lower experienced only in the most severe cold outbreaks. The Spring Mountains immediately west of the valley as well as the Sierra Nevada Mountains in California frequently act as barriers to moisture moving in from the Pacific. It is primarily these features which limit the number of days each year that precipitation falls in Las Vegas and help make Las Vegas the driest major metropolitan area in the continental United States. During the cold season months, cold fronts and storm systems moving in from the Pacific occasionally bring precipitation and more often, gusty winds with them. While strong winds associated with cold season storms have been seen as early as late September and as late as early June, they are most common in the spring months and again in the fall when the majority of storms tend to pass through the area with no precipitation. The strong winds that do occur usually reach this valley from the southwest or pass through from the northwest. Winds over 50 mph are infrequent, but when they do occur, are probably the most provoking of the elements experienced in the Las Vegas Valley because of the blowing dust and sand associated with them. However, outside of the wind, the spring and fall months are usually considered the most ideal, though rather sharp temperature changes can occur during these months. Snow itself has fallen in about two-thirds of the winter seasons at least once, however, it usually melts as it falls. Measurable snow at the official climate station typically occurs once every four or five years, however, higher elevations on the valley's west side such as the Summerlin area see measurable snow about every three years or so.

In the warm season months, typically in July and August, a push of moisture associated with the monsoon moves into the Mojave Desert bringing higher than average humidity and triggering scattered thunderstorms. These storms typically develop in the mountains surrounding the Las Vegas Valley and then move into the valley itself. While the gusty winds associated with them occasionally do cause damage, other times the main impact from these storms is the heavy rain they

unleash that triggers flash flooding. The flash floods that do result from thunderstorms often sweep down normally dry washes or cause water to pour into low-lying areas. By September, the monsoon typically wanes and the first break from the intense heat of summer is experienced.